# Gainward HD 4650 1024MB HDMI DVI

| GPU | Core | Memory | Capacity | Type | Outputs |
|---|---|---|---|---|---|
| HD 4650 | 600 MHz | 800 MHz | 1GB | DDR2 / 128 bits | DVI, HDMI, VGA |

## PRODUCT SPECIFICATIONS

- **Superior Hardware Design**
- **Gainward's** award winning High-Performance/ Wide-Bandwidth™ hardware design powered by ATI's Radeon® **HD 4650** GPU integrating **1024MB high-speed DDR2** memory which offers enhanced, leading-edge performance for the 3D enthusiasts.
- **600MHz** core clock, **400 (DDR 800) MHz** memory clock.
- High performance two-slot cooling fan.
- Provides **DVI-I** (Dual-link DVI, support up to 2560x1600), **HDMI** and **VGA (D-sub 15)** connectors.
- Provides **HDMI** functionality up to 1080p resolution**.**
- Built-in **HDMI** with 7.1 surround sound**.**
- Supports two monitors simultaneously, enabled by ATI's Multi-Display Technology for office applications, 3D gaming and professional applications, animation or video editing. It allows end-users to select any combination of display configurations, within DVI, HDMI and VGA.

## CHIPSET SPECIFICATIONS

- **AMD ATI Radeon HD 4650 (RV730Pro):** ATI's powerful new TeraScale graphics engine features deliver high resolution and fast frame rates.
- **Unified Superscalar Shader Architecture:** with **320** stream processing units support for dynamic load balancing and resource allocation for vertex, geometry and pixel shaders.
- **Microsoft DirectX 10.1 support**
  - Shader Model 4.1
  - 32-bit floating point texture filtering
  - Indexed cube map arrays
  - Independent blend modes per render target
  - Pixel coverage sample masking
  - Read/write multi-sample surfaces with shaders
  - Gather4 texture fetching
- **Anti-Aliasing Features:**
  - Multi-sample anti-aliasing (2, 4 or 8 samples per pixel)
  - Up to 24x custom filter anti-aliasing (CFAA) for improved quality
  - Adaptive super-sampling and multi-sampling
  - Temporal anti-aliasing
  - Gamma correct
  - Super AA (ATI Crossfire configuration only

## BUNDLED ACCESSORIES

- Gainward ATI Quick Start Manual

- Driver CD and Application S/W

*Driver for Windows XP/2000/XP 64*

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- **ATI Catalyst™ Software Suite** provides a full software solution for supported OS and delivers improved performance, certified stability, unmatched visual quality, innovative and exciting features that enables users to quickly setup and configure the graphics product.
- Includes Gainward's award winning **EXPERTool™ tuning utility** for customized performance enhancements and efficient desktop management.
- Easy Plug-and-Play **AUTORUN** installation from CD-ROM.
- **ATI's CrossFire™ Technology:** ATI's CrossFire™ technology enables two discrete graphics processors to work together to improve system performance. The must-have feature for performance PCI Express graphics, CrossFire™ technology dramatically scales performance on today's hottest games.
- **PCI Express 2.0 Support:** Designed to run perfectly with the new PCI Express 2.0 bus architecture, offering a future-proofing bridge to tomorrow's most bandwidth-hungry games and 3D applications by maximizing the 16 GB/s PCI Express 2.0 bandwidth(twice that of first generation PCI Express).

- **Texture Filtering Features:**
  - 2x/4x/8x/16x high quality adaptive anisotropic filtering modes (up to 128 taps per pixel)
  - 128-bit floating point HDR texture filtering
  - Bicubic filtering
  - sRGB filtering (gamma/degamma)
  - Percentage Closer Filtering (PCF)
  - Depth & stencil texture (DST) format support
  - Shared exponent HDR (RGBE 9:9:9:5) texture format support
- **Avivo™ HD Video and Display Platform**
  - Dedicated unified video decoder 2 (UVD2) for H.264/AVC and VC-1 video formats
  - ATI Avivo Video Post Processor
  - Two independent display controllers
  - HDMI output support
  - Hardware MPEG-1, MPEG-2, and DivX video decode acceleration
  - On-chip HDCP
  - Seamless integration of pixel shaders with video in real time
  - VGA mode support on all display outputs
- **ATI PowerPlay™ technology**
  - Advanced power management technology for optimal performance and power savings
  - Performance-on-Demand
  - Central thermal management – on-chip sensor monitors GPU temperature and triggers thermal actions as required

Note: Gainward's bundle items are subject to change. Please refer to your local Gainward dealer for more information, or the description in the regional product package

## SYSTEM REQUIREMENTS

- Intel Core2Duo series, AMD Athlon 64 X2 series or above CPU
- A minimum of 2GB system memory
- A minimum 400W system power supply.
- DVD-ROM drive
- Requires a PCI Express or PCI Express 2.0 compliant motherboard
- Requires an available PCI Express x16 slot
- Windows Vista/XP/2000/XP 64

## API SUPPORT

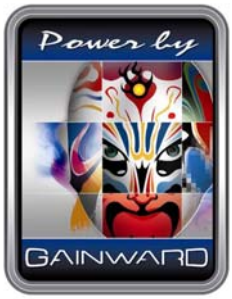
- DirectX 10.1/9.0c in hardware
- OpenGL 2.0 support

## OS SUPPORT

- Windows Vista/XP/2000/XP 64

## BAR CODE

- Large Box: 471846200-9696



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